In order to check the reproducibility of blood assays, a blind duplicate system is used whereby 5% of the aliquots have a duplicate aliquot prepared. This duplicate aliquot is made to look identical to any other aliquot. For each participant, a set of cryovials is prepared with a sample-specific barcode, each individual aliquot having a unique 2-digit extension. Each blind duplicate set also has a unique barcode. A Blind Duplicate Identification Form provides the key to which cryovial contains what participant's sample.

When assays are run, both participant aliquots and blind duplicate aliquots are run simultaneously, as the lab is unable to recognize which aliquot is a blind duplicate and which a "real" aliquot. The data are transferred to the coordinating center, and those results corresponding to blind duplicate barcodes are separated into a separate dataset. The results are then matched up using the key from the blind duplicate analysis and a correlation coefficient (R), coefficient of variation (CV), and a Lin's concordance coefficient (ρ_c) and z transformation[i] were determined for each assay.

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[i] Lin, LI-K (1989) A concordance correlation coefficient to evaluate reproducibility. **Biometrics** 45:255-268.